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REPORT

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SUBJECT Mielec WSK Aircraft Factory

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Mielec "WSK" Aircraft Factory

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General Information

1. The aircraft assembly plant in Mielec (N 50-17, E 21-25) was the only one in Poland assembling military jet aircraft. Prior to World War II, it housed an unidentified phase of parts production within the Polish aircraft industry. It was salvaged [redacted] during their attack on Poland and used for their production effort. Later, from 1945 through 1953, this plant underwent general reconditioning and new construction. From 1945 to 1951 it produced small unidentified civilian products and in 1951 returned to some sort of military production. In 1952 and 1953 assembly of aircraft began. In 1958, a program was in progress for further expansion of the factory, [redacted] Production at that time centered around MIG-15bis aircraft, although in 1957 the factory was retooled first for MIG-17 production and then suddenly for the MIG-19. The Mielec plant carried, as did Poland's three other plants primarily engaged in aircraft part production, the designation "WSK" [redacted]

Sub-Assembly Plants

2. The Polish jet aircraft industry was spread among many factories producing a variety of parts for final assembly in Mielec. Figure 1 on page 11 is a production flow diagram of the Polish Jet Aircraft Industry, showing the movement of items first manufactured in military "S" production factories through four sub-assembly points to final assembly at Mielec. The following letters in parentheses refer to the corresponding letters on the figure:
 - (A) Many of the "S" (military) production factories in Poland produced various small aircraft parts for engines, airframes, and armament. These were completed and shipped to the sub-assembly plants for further use in the production effort.
 - (B) The Wroclaw "WSK" manufactured various precision items used in jet engines and complex aircraft hydraulic and electrical systems. This plant was [redacted] construction and was supposedly destroyed [redacted] This entire site, including the underground sections, was reconstructed by the Poles prior to 1949.
 - (C) The Rzesow "WSK" manufactured primarily jet aircraft engines; however, they occasionally produced conventional engines. Types produced at this factory were: SOT-1(RD-45f) for the LIM-1 (MIG-15); SOT-2 (VK-1) for the LIM-2 (MIG-15bis); and a MD-11m for the CSS-13. [redacted] this plant must

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have been geared for production of the SOT-3 and SOT-4 engines for use in the MIG-17 and MIG-19 aircraft.

- (D) The Swidwin "WSK" primarily manufactured helicopters (SMI-1), in series production, which were to be exported. It also produced parts for airframes, tails, flaps, and elevators. This new factory was completed and began production in 1952.
- (E) The Mielec "WSK" also maintained a sub-assembly department for manufacturing airframes.

Labor Force

3. Approximately 15,000 professional, skilled, and semi-skilled workers comprised the labor force of this factory. Each worker was required to work 46 hours a week as a given norm; however, in order to increase their wages they were entitled to work Saturday and/or Sunday. Three shifts were employed at this factory with various unidentified departments working the late night shift. The final assembly department worked only during the 0700-1500 and 1500-2300 hour shifts.

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Production and Production Program

4. According to plans this plant was geared to produce one aircraft every eight hours. [redacted] December 1955 was a record production month with 20 MIG-15bis aircraft produced. This figure was double that of any previous month.

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5. In November 1956, [redacted] MIG-17 cockpit covers stored at the factory site. [redacted] their design was different than that of the cockpit cover of the MIG-15bis (See Figure 2 on page 12 [redacted] sketch of the cockpit covers of the MIG-15bis and the MIG-17). The cockpit cover for the MIG-17 was more flat, streamlined, and more aerodynamically styled than that of the MIG-15bis. The center bar was missing on the cockpit cover for the MIG-17 which increased the pilot's over-the-shoulder and overall visibility. The manufactured design of the MIG-17 cover indicated [redacted] the cockpit would give the pilot more head room and greater comfort with regard to seating. The glass (plastic) type material was thicker than the cockpit cover of the MIG-15bis. [redacted] this had been done to strengthen the covering since no supports were available on the new model; the plane also was constructed to fly at greater speeds and the extra strength was needed.

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6. Although the plant was completely tooled up for production of the MIG-17, in late 1957, a sudden change in planning took place and retooling began for the MIG-19. Several prototypes of MIG-17 had been completed by that time [redacted] the actual production of a MIG-19 prototype. [redacted] plans and specifications for the MIG-19 had arrived

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at the factory in late 1957. During 1957, a change-over period, this State enterprise also produced pots, pans, baby-carriages 25X1

7.

Control Inspections and Flight Testing

8. Technical control inspections were divided into two phases, production control and final control. In the first phase, various checks and inspections were made during the production of parts

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and their assembly. The final control phase was conducted by various specialists (engine and airframe, electrical, radio, and armament) who inspected the aircraft with respect to the exact norms set forth in the specifications. This was carried out in three steps: first, by the mechanics; second, by the technicians; and third, by the engineers. Three inspections were conducted by these specialists: the first was a thorough inspection prior to the flight test by the factory test pilot; the second was both a post-flight inspection after the primary flight test and a pre-flight test prior to the second flight test; the third was a post-flight test after the second flight test by the factory test pilot. Upon completion of the last inspection the aircraft was turned over to the military pilot who could accept delivery with or without a flight test.

9. Flight testing on all aircraft was achieved by both factory test pilots and military test pilots. The factory test pilot flew two tests. The first was a 15-minute trial run at an altitude of 500 - 1200 meters to check only take-off, landing and control systems. For the second test special instrumentation (unidentified) was placed in the aircraft to check speed, altitude, and flight time; this test included:
 - a. Take-off
 - b. Obtaining of maximum speed at an altitude of 1200 meters.
 - c. Obtaining of maximum speed at an altitude of 8000 - 10,000 meters.
 - d. Test for maximum altitude.
 - e. Performing of acrobatics at an altitude of 4000 meters.
 - f. Landing
10. The pilot then proceeded to write up the test flight and aircraft characteristics. A mechanic made the post-flight check and completed the aircraft documentation. At this time the aircraft was assigned to a specific unit and accepted by a military pilot from this unit. The military pilots then checked the documentation and made a visual inspection. The military pilot had his choice as to whether or not he wanted to test the aircraft, but in either case he had to assume responsibility for the aircraft. Consequently, most pilots flight-tested the aircraft. This test included:
 - a. Take-off.
 - b. Maximum speed at various altitudes, and acrobatics.
 - c. Landing.

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A post-flight inspection was made by the pilot and a maintenance specialist, who had accompanied the pilot from the unit. If any defects were found the factory was responsible for making all repairs.

Higher Institute of Aviation (GIL) Project

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11.

the specific project on which the Higher Institute of Aviation was currently engaged.

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tests were being run on the endurance of the airframe and engine of the present aircraft in production (MIG-15bis); two MIG-15bis (LIM-2) aircraft parked in the Institute section of the hangar. One had had numerous bags of sand resting on its wings for at least two weeks. The other was undergoing a 50-hour ground test while using a cheaper grade of oil and a cheaper grade of fuel.

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Pinpoint Location

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12.

Figure 4 on page 14

Scale 1:25,000, pinpointing the location of Mielec Aircraft Factory and Airfield. Numbers in parentheses below refer to corresponding numbers on the overlay.

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- (1) Airfield - a pre-war site reconstructed after World War II. There was one runway with a long emergency overrun at the east end. There were no obstructions to take off or landing and the northern side of the runway was heavily sodded with grass; this portion was to be used for emergency landings.
- (2) Factory Area - separated from the airfield area by a fence.
- (3) Stone and Asphalt Highway - 10 meters wide, leading from the factory area through the workers' housing area into Mielec.
- (4) Workers' Housing Area (Mielec Osiedle) - located on both sides of the main highway in an area measuring 350-400 x 800-900 meters which was not enclosed; only employees of the aircraft factory qualified for housing in this area.
- (5) Sports Stadium - constructed of red brick. An excellent orientation point from the air, it was lined up with the west end of the runway.
- (6) City of Mielec - having a population of approximately 20,000 persons.
- (7) Rail Spur - ESG, leading directly to the aircraft factory site.
- (8) Double and Single Rail Line - ESG, running to Tarnobrzeg (N 50-35, E 21-41) to Mielec to Rzeszow (N 50-03, E 22-00).


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Site Layout

13. Inclosure 1 is a  sketch of the Mielec Aircraft Factory and Airfield. Numbers in parentheses below refer to corresponding numbers on the inclosure.

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- (1) Stone and Asphalt Highway - 10 meters wide, leading from the factory area to the workers' housing area. The distance to the housing area was approximately 2.5 kilometers.
- (2) Stone Parking Area - measuring 60 x 150 meters. This was believed to be used by official vehicles.
- (3) Fence - two meters high, of wire mesh topped with one meter of barbed wire. This enclosed the entire factory area.
- (4) Transformer Station - a one-story, concrete building measuring 4 x 4 x 4 meters.  this installation received its electric power from the city power supply. 25X1
- (5) Administrative Building - a three or four-story, red brick structure measuring 40 x 25 x 20 meters. This housed the plant administration which handled personnel, finance, cost, and general administrative policies. All offices of director, section heads, administrative employees and secretaries were located here.
- (6) Visitors Bureau - a red brick, barrack type structure measuring 10 x 6 x 4 meters. In order to obtain a pass for entrance into the factory area, a visitor was required to call the security section of the administrative department and be cleared. The guard stationed in this building monitored all traffic through the adjacent gate.
- (7) Red Brick Garage - measuring 30-40 x 16 x 4 meters. This was used to park various vehicles, including those belonging to the fire department.
- (8) Guard Post - a one-story, red brick structure measuring 10 x 6 x 4 meters. This was the employee entrance; a pass had to be presented upon entrance and exit. All employees were checked for stolen parts or material.
- (9) Main Thoroughfare - a 10-meter-wide stone street with a sidewalk on either side. It divided the factory area in half and led directly to the airfield.
- (10) Street - a typical factory street. It was approximately seven meters wide, constructed of cobblestone, without sidewalks.
- (11) Recreation Area - a one-story, brick and wood structure measuring 15-20 x 10 x 6 meters. It was an entertainment center for employees and visitors.

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- (12) Transformer Station - a one-story, concrete building measuring 4 x 4 x 4 meters. [redacted] electrical wires leading to this building from the transformer station, Point (4).
- (13) Engineering Department - a three-story, red brick construction measuring 30 x 20 x 15 meters. Data evaluations, test programs, production drawings, modification programs, and other related engineering projects were conducted here. [redacted] other engineering facilities were located at this plant [redacted]
- (14) Unidentified Installation - a red brick, hall-type structure measuring 15-20 x 8 x 4 meters.
- (15) Storage Facilities - a complex of red brick, hall-type structures, measurements unknown. [redacted]
- (16) Machine Shops - two one-story, plastered brick structures with glass roofs. Each measured 40-50 x 15 x 4 meters. This was an assembly point for some sort of electrical apparatus.
- (17) Tool Design and Manufacture Shops - two one-story, plastered brick structures with glass roofs, each measuring 40-50 x 30 x 4 meters. Located in these shops were a variety of tool machines.
- (18) Unidentified Storage Area - groups of barrack - type buildings.
- (19) Several Underground Buildings - two of which were visible from the street. [redacted] there were several more. These were thought to be used as a storage area for inflammable materials or as air raid shelters. The buildings were constructed half above and half below ground; they measured approximately 10 x 10 x 2 meters above the ground.
- (20) Sheet Metal Forming Section - a one-story, steel and concrete structure measuring 50 x 30 x 20 meters. Automatic machines for the manufacture of various unidentified parts were located here.
- (21) Sub-assembly Area - a "T"-shaped, one-story, steel and concrete structure measuring approximately 60 x 30 x 20 meters. All portions of the air frame were assembled here, including the fuselages, tails, and wings. The most noticeable type of machine located here were large welding jigs.
- (22) Unidentified Portion of Assembly Area - this was a corridor leading from building, Point (21), to building, Point (23). This building was of the same type construction as the other buildings; measurements were unknown.

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- (23) Receiving and Inspection Department - a one-story, "L"-shaped, steel and concrete structure measuring 60 x ? x 20 meters. Airframe parts and materials were tested and weighed in this section; also located here was a tailor shop for protective covering and other fabric products used in connection with aircraft.
- (24) Unidentified Building - a one-story, steel and concrete structure measuring 30 x 20 x 15 meters. this was used for storage; no activity was noted. 25X1
- (25) Cobblestone Area - measuring 100 x 40-50 meters; it was traversed by electrically operated, overhead cranes.
- (26) Protective Finishing, Plating, and Heat Treatment Department - a one-story, steel and concrete structure measuring 100 x 20 x 8 meters. this section was operated 24 hours daily. 25X1
- (27) Final Assembly Hangars - two one-story, steel, concrete, and glass structures, each measuring 40 x 25-30 x 15-20 meters. In addition to the assembly area there was a special section that completed all required documentation for each aircraft.
- (28) Weather Station - a two-story, red brick building measuring 20 x 15 x 10 meters. All weather forecasting equipment was located in this building; it also doubled as a flight control tower. The building was located in a wooded area and approached by a dirt path.
- (29) Fence - two meters high, of wire mesh topped with one meter of barbed wire. This enclosed the airfield area.
- (30) Guard Post - a one-story, red brick structure measuring 4 x 4 x 4 meters. Several guards were posted here; all were armed with carbines.
- (31) Compass Testing Equipment - a round turntable installation; it was 12-15 meters in diameter and constructed of steel and wood within a concrete foundation, which was marked with different compass points. A new aircraft would be parked at a designated point on the turntable; the turntable would begin to rotate, and the pilot would check his magnetic compass readings with the corresponding figures on the concrete foundation.
- (32) Runway - measuring approximately 2000 x 60 meters. It was constructed of concrete, block sections, measurements unknown. A one-meter-wide, asphalt strip ran down the center of the runway and was used primarily for orientation purposes. This runway had an 300-400 meter overrun on the eastern end and

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could easily be extended in this direction. [redacted]

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[redacted] this runway could accommodate heavy bombers if necessary. [redacted] there was a secondary asphalt runway nearby but could not orient it in relation to the first.

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(33) Concrete Taxi-ways - 10 or 15 meters wide. [redacted]

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- (34) Aircraft Parking Area - enclosed by a two-meter-high fence of wire mesh topped with one meter of barbed wire. This compound measured 40 x 30 meters and was designated as the parking area for aircraft already tested by the military pilots and awaiting ferrying to units.
- (35) Hangar Number One - a one-story, concrete, steel and glass structure measuring 70 x 40 x 20 meters. Pre-flight testing was centered in this building; mechanics, technicians, and engineers made final control checks and inspections here. Upon the completion of the pre-flight test phase, factory test pilots flight-tested the aircraft and returned it to this hangar for a post-flight check. The aircraft were then parked in a section of the hangar or on the apron directly in front of the hangar to await testing by military pilots.
- (36) Hangar Number Two - a one-story, concrete, steel and glass structure measuring 70 x 40 x 20 meters. Half of this building housed the same pre-flight and post-flight testing phase as Hangar Number One, Point (35). The other half of the hangar belonged to a special section of the Higher Institute of Aviation (GIL) which was conducting tests within the current production series.
- (37) Concrete Parking Apron - measuring 200 x 70-80 meters. This was used for parking aircraft ready for inspection or flight testing. There were also several prop-driven aircraft belonging to the Higher Institute of Aviation (GIL) parked here in front of Hangar Number Two, Point (36).
- (38) Firing Range - an enclosed area measuring approximately 150 x 100 meters. Testing of new aircraft weapons prior to their mounting was carried out here; weapons tested were the N-37, NS-23, and NR-23. This range was guarded by a detachment from the KBW security forces.

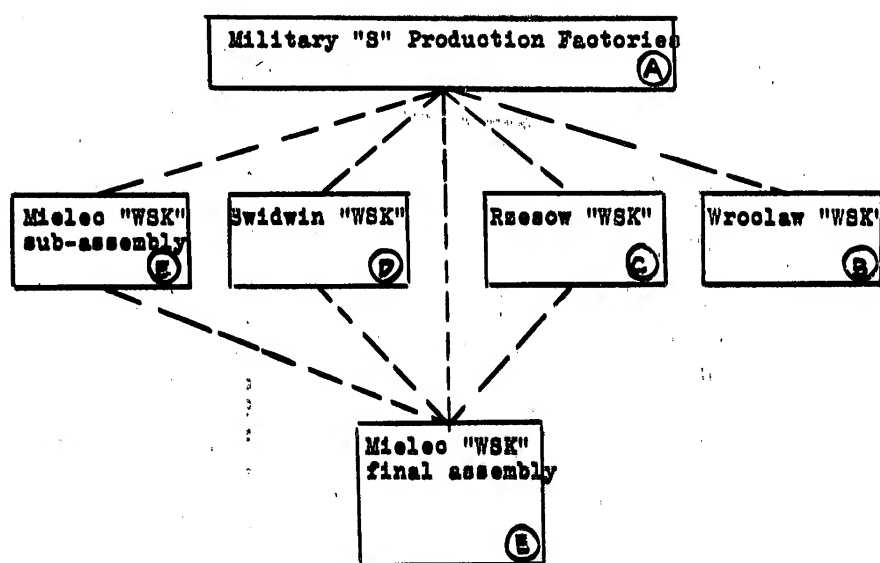
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Figure 1 : Production flow
diagram of the Polish Jet
Aircraft Industry.



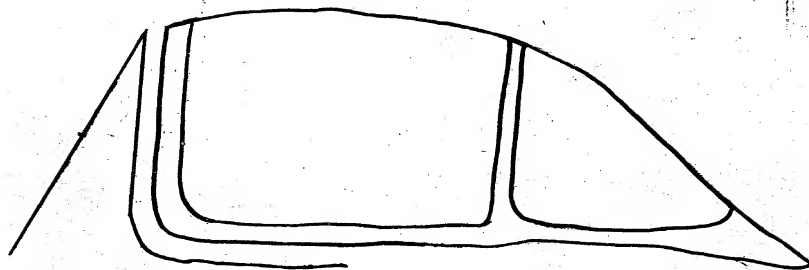
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Figure 2:
Sketch of the cockpit covers
for the Mig-15bis and the Mig-17.

MIG - 15bis



plastic
air pocket
plastic

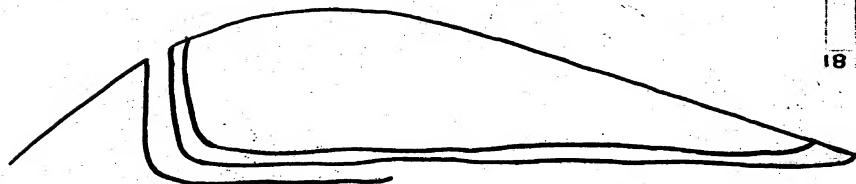
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MIG - 17



plastic
air pocket
plastic

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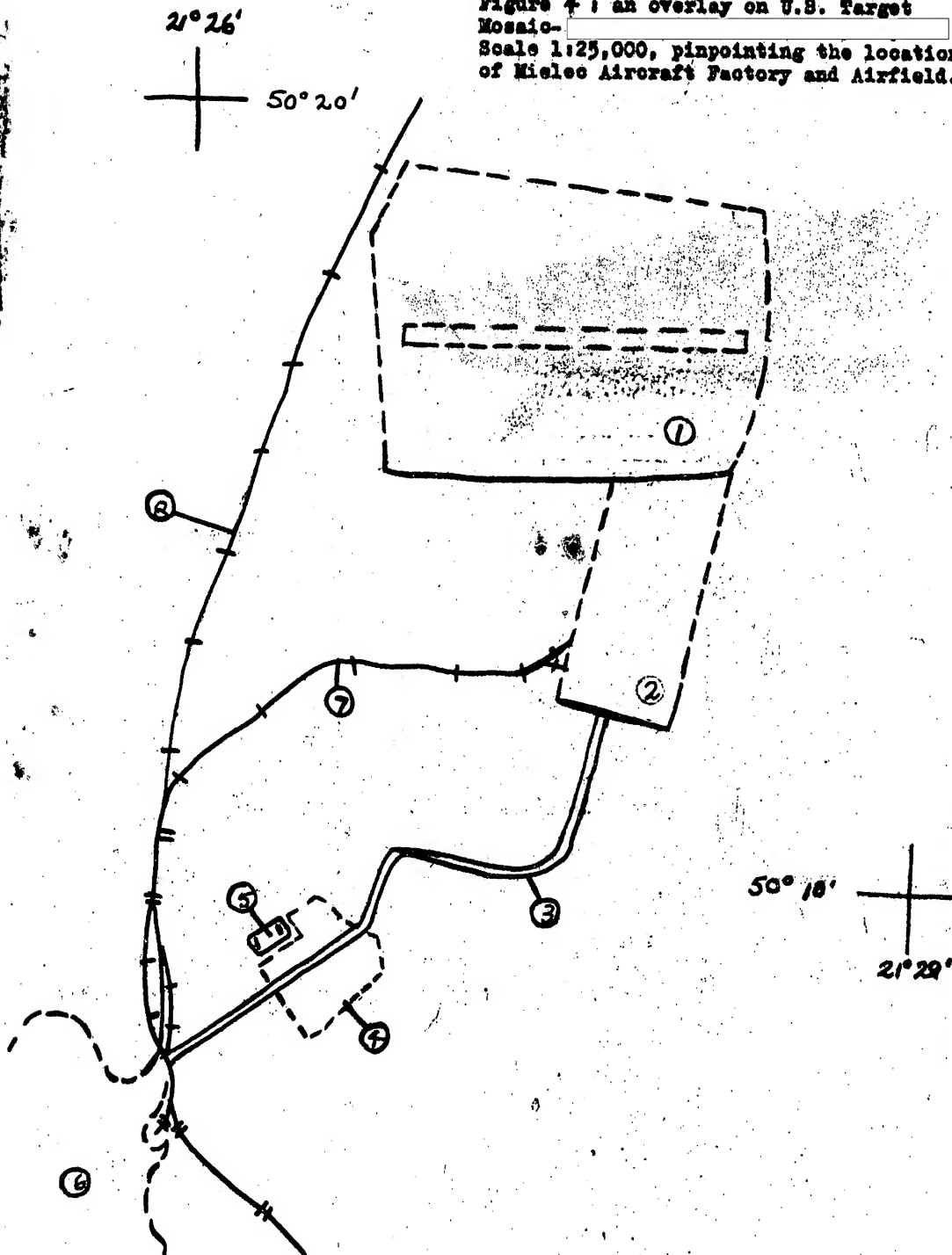
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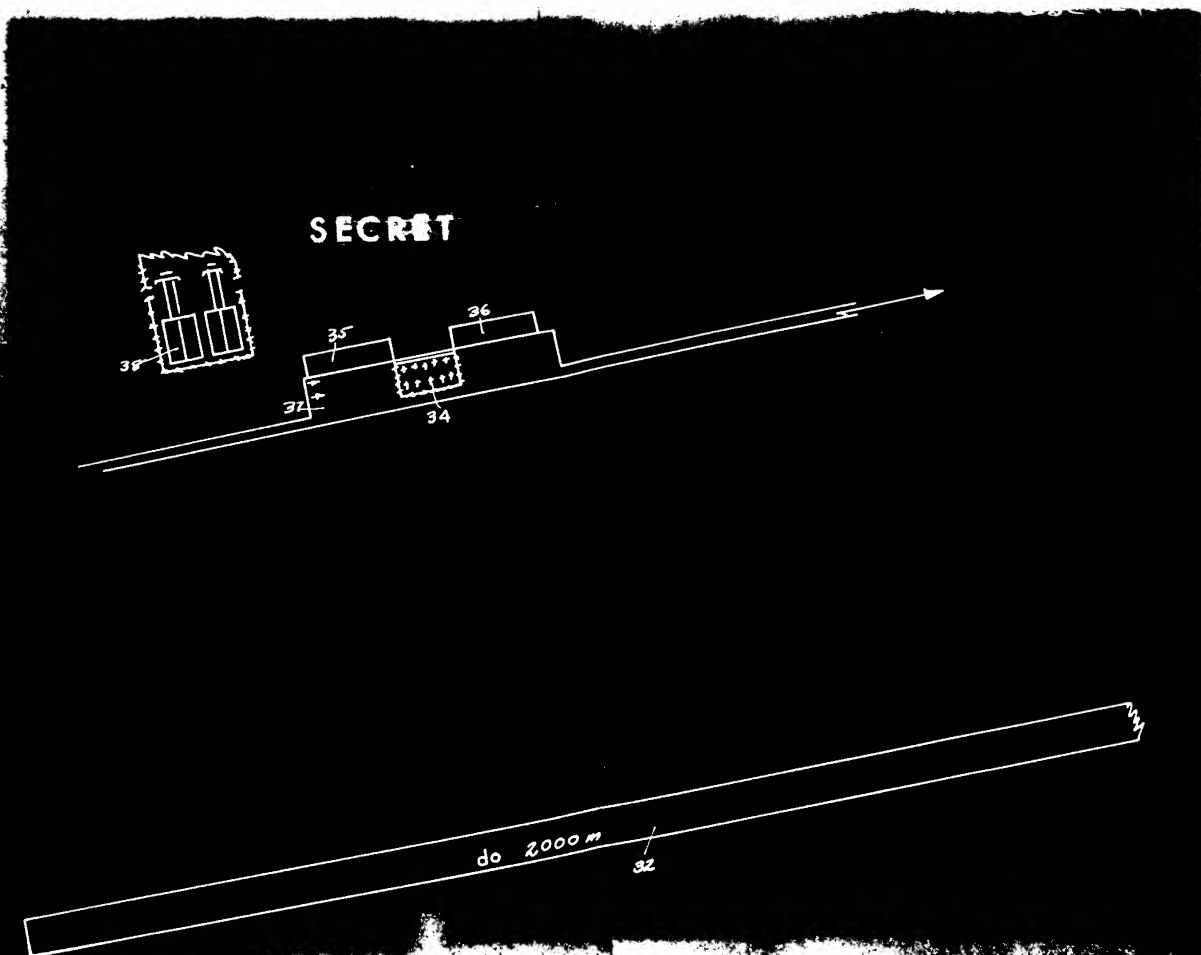
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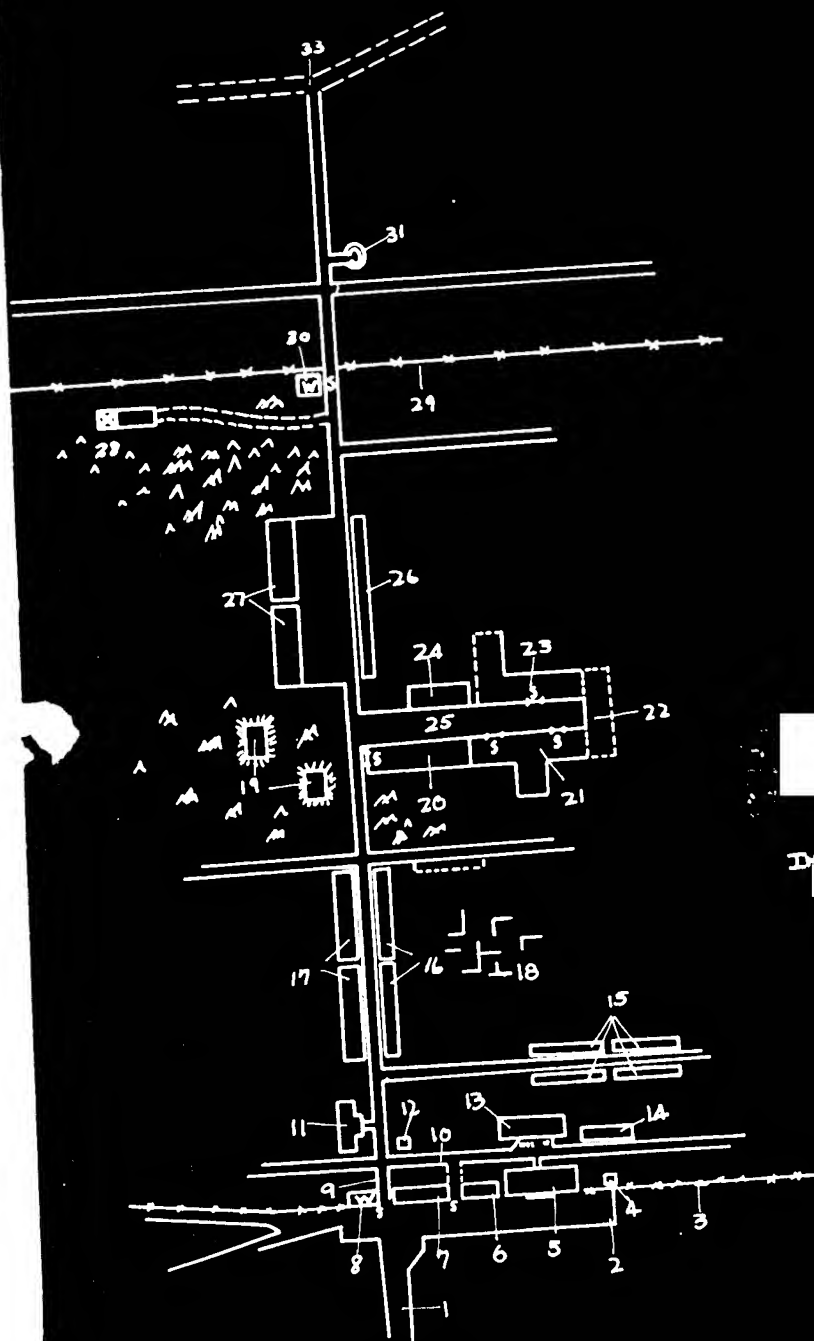
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Figure 4 : an overlay on U.S. Target Mosaic-
Scale 1:25,000, pinpointing the location of Mielec Aircraft Factory and Airfield.



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ENCLOSURE I:-

OF MELEC AIRCRAFT
FACTORY AND AIR FIELD

SECRET